

D101.2:R/24/16



REDSTONE ARSENAL YESTERDAY AND TODAY

BY
MICHAEL E. BAKER





COVER

The first Commanding Officer of the Redstone Ordnance Plant, MAJ Carroll D. Hudson, breaks ground on 25 October 1941 for the construction of the plant's first building. The plant was redesignated Redstone Arsenal on 26 February 1943.

REDSTONE ARSENAL

YESTERDAY AND TODAY

By
MICHAEL E. BAKER, Chief
Historical Division



Secretary of the General Staff
U.S. Army Missile Command
Redstone Arsenal, Alabama 35898-5010
4th Printing
1993

THE UNIVERSITY OF CHICAGO
LIBRARY



1950

On the eve of U. S. involvement in World War II, Edgewood Arsenal, Maryland, was the only chemical manufacturing installation of the Chemical Warfare Service. Consequently, the Chief of the Chemical Warfare Service requested that the War Department acquire additional facilities to supplement Edgewood's production.

About 30,000 acres of land suitable for construction purposes were required for the site of the additional facilities. The land was to be located inland, far enough from the seacoast to provide sufficient protection. Also needed was access to adequate rail, water, and highway transportation; sufficient fuel and electrical power; and ample construction materials and enough raw materials for subsequent operations. Areas considered for the site included Florence, Huntsville, and Tuscaloosa, Alabama; El Dorado, Arkansas; Kansas City and St. Louis, Missouri; Toledo, Ohio; Memphis, Tennessee; and Charleston, West Virginia.

On 3 July 1941, the War Department announced that a site on the southwestern edge of Huntsville, Alabama, had been selected as the location for the new chemical munitions manufacturing and storage plant. Not only was this area an inland site, but its numerous mountain ranges afforded additional protection. Moreover, the tract of land selected contained over 30,000 acres which were available at very reasonable prices. The transportation facilities, labor conditions, and climate, health, and living conditions of the area were considered to be excellent. Material for construction and raw material for manufacturing could be obtained easily. Also readily available were large supplies of soft coal and fuel oil. The water supply and sewage disposal presented no problems. Finally, the Tennessee Valley Authority could furnish the required electric power.

On 24 July 1941, the War Department announced that the official name of the new chemical munitions plant was Huntsville Arsenal. The Chemical Warfare Service had proposed that the site be named Sibert Arsenal in honor of Major General William L. Sibert, a native of Gadsden, Alabama, and the first Chief of the Chemical Warfare Service from June 1918 to February 1920. The name Sibert, however, was reserved for Camp Sibert, a training center of the Chemical Warfare Service which was established at Gadsden in 1942. It was subsequently deactivated at the end of the war.

The first commanding officer of Huntsville Arsenal arrived on 4 August 1941 and broke ground for initial construction of the arsenal. By March 1942, the arsenal's first production facility had been activated. Huntsville Arsenal became the sole manufacturer of colored smoke munitions and was also noted for its vast production of gel-type incendiaries. The arsenal also produced toxic agents such as mustard gas, phosgene, lewisite, white phosphorous, carbonyl iron, and tear gas. During World War II, more than 27,000,000 items of chemical munitions having a total value of over \$134.5 million were produced. Personnel of Huntsville Arsenal won the Army-Navy "E" Award four different times for their outstanding record in the production of war equipment.

Included in the acreage composing Huntsville Arsenal was over 7,700 acres which were to be used for construction of a depot area. Accordingly, the War Department formally established the Huntsville Chemical Warfare Depot on 6 March 1942. Located in the extreme southern portion of Huntsville Arsenal bordering the Tennessee River, this depot received, stored, and issued such Chemical Warfare Service materiel as munitions, bulk chemicals, decontaminating apparatuses, protective materials, and gas mask spare parts.

To avoid confusion with Huntsville Arsenal, the War Department changed the name of this depot on 10 August 1943 to the Gulf Chemical Warfare Depot. The name was subsequently changed to Gulf Chemical Depot on 2 August 1946. Effective 15 January 1947, the Gulf Chemical Depot was abolished and its functions were transferred to Huntsville Arsenal.

Recognizing the tremendous economy of locating an Ordnance shell loading/assembly plant close to Huntsville Arsenal, the Chief of Ordnance decided to build a facility to be known as the Redstone Ordnance Plant on a 4,000-acre tract east of and adjacent to Huntsville Arsenal. On 6 October 1941, the first Commanding Officer of the Redstone Ordnance Plant arrived in Huntsville and finalized the construction plans. Ground breaking ceremonies occurred on 25 October 1941, and the War Department officially activated the Redstone Ordnance Plant on 5 February 1942. One year later, on 26 February 1943, the plant was redesignated Redstone Arsenal.

The only Government-owned, Government-operated arsenal established by the Ordnance Department during World War II, Redstone Arsenal produced such items as burster charges, medium and major caliber chemical artillery ammunition, rifle grenades, demolition blocks, and bombs of various weights and sizes. In fact, between March 1942 and September 1945, over 45,200,000 units of ammunition were loaded and assembled for shipment. The arsenal also perfected the technique of mass production of tetrytol, a highly explosive binary mix used in certain bursters, boosters, and demolition blocks. For their outstanding services in the manufacture of munitions, Redstone employees won the aforementioned Army-Navy "E" Award five different times. Some of these activities are shown on the following pages.



Shell Storage



Burstering



Boosting.



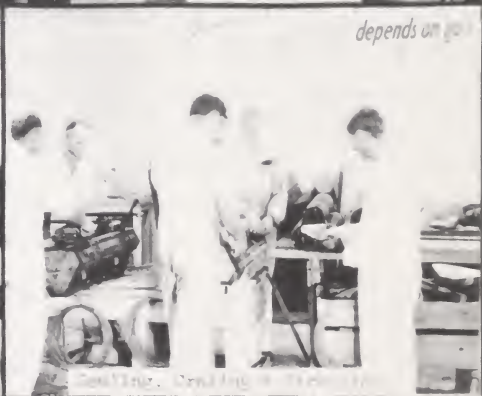
Fuzing



Packing Shells



Drawing, Drawing & Cloverleafing



depends on job

Sorting, Drawing & Packing



While the spectacular successes in the more sophisticated field of guided missiles tend to overshadow its previous accomplishments, the Redstone Arsenal complex established a commendable record in World War II as one of the best equipped, most productive chemical munitions manufacturing centers in the nation.



Once World War II ended, production at both arsenals ceased and the focus shifted to such activities as renovating and salvaging ammunition returned from overseas; disposing of surplus property; decontaminating buildings and equipment; and placing the production plants in standby storage. Redstone Arsenal was placed on standby status in February 1947. By the end of the year, the Secretary of the Army had decided to declare Huntsville Arsenal excess to the needs of the Chemical Corps. On 9 November 1948, however, the Chief of the Chemical Corps informed Huntsville Arsenal that it was being removed from the surplus category and placed on standby status for possible use by the Department of the Air Force. When the Air Force subsequently decided against using this arsenal, the Office of the Assistant Secretary of the Army directed that Huntsville Arsenal be advertised for sale by 1 July 1949. The sale never happened, however, because the Army found that it needed Huntsville Arsenal's land for a new mission that was developing at Redstone Arsenal.



Previously, the Chief of Ordnance had designated Redstone Arsenal as the center for research and development in the field of rockets in October 1948. On 1 June 1949, he officially reactivated the arsenal as the site of the Ordnance Rocket Center. Conversely, Huntsville Arsenal ceased to exist as a separate installation at 2400 on 30 June 1949. Its remaining staff of 450 was transferred to Redstone Arsenal which also assumed the functions necessary for providing internal

security and maintaining essential utilities for lessees pending the final disposition of Huntsville Arsenal's land and property.

In the interest of economy and efficiency, the Secretary of the Army approved the transfer of the Ordnance Research and Development Division Sub-Office (Rocket) at Fort Bliss, Texas, to Redstone Arsenal on 28 October 1949. Among those transferred were Dr. Wernher von Braun and his team of German scientists and technicians who had come to the United States under "Operation Paperclip" during 1945 and 1946. After its transfer to Redstone, the sub-office was redesignated the Ordnance Guided Missile Center on 15 April 1950. With the addition of this missile group, Redstone Arsenal needed more land. So, effective 1 April 1950, the Department of the Army officially discontinued Huntsville Arsenal and consolidated the major portions of its land and facilities with Redstone Arsenal.



The Army's "Mr. Missile," MG Holger N. Toftoy, and Dr. Wernher von Braun with four of their major "projects" in the background: the NIKE AJAX, HONEST JOHN, CORPORAL and REDSTONE.

In February 1951, the Office of the Chief of Ordnance and the Chief of the Army Field Forces approved Redstone Arsenal as the site for guided missile courses. Accordingly, on 3 March 1952, the Commanding Officer at Redstone Arsenal officially established the Provisional Redstone Ordnance School. Effective 1 December 1952, Redstone Arsenal lost jurisdiction over the school when the present-day Ordnance Missile and Munitions Center and School (OMMCS) was established as the Ordnance Guided Missile School.

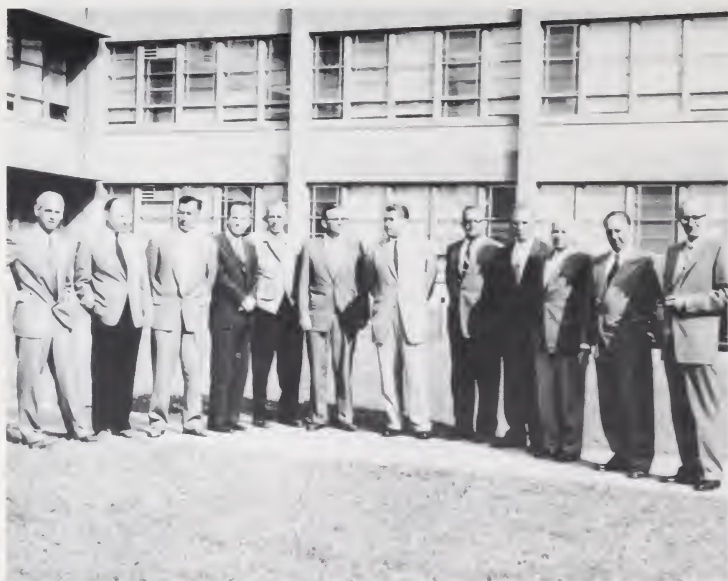
In addition to its rocket and guided missile missions, Redstone Arsenal also retained the chemical ammunition mission of the wartime Redstone and Huntsville Arsenals until 1 July 1956. Following the U. S.'s entry into the Korean War, four ammunition production lines were reactivated from standby status and resumed production in July 1951. By the end of 1955, Redstone Arsenal was producing a major portion of all chemical artillery ammunition used by U. S. armed forces. Between July 1951 and July 1956, over 38,700,000 complete rounds of chemical artillery ammunition were produced.

On 1 February 1956, Redstone Arsenal suffered a severe loss in its mission, as well as in personnel and facilities, when the Army Ballistic Missile Agency (ABMA) was established. The core of the new agency came from the Guided Missile Development Division of Redstone Arsenal's Ordnance Missile Laboratories. From this division, ABMA inherited some 1,600 personnel, including the team of German scientists headed by Dr. von Braun; 1,100,000 square feet of space in buildings containing over \$21,000,000 worth of equipment; and such support facilities as utilities and grounds valued at \$2,500,000. The availability of these resources, coupled with the proven success of the division's personnel in the REDSTONE missile program, led the Department of the Army to select the Redstone Arsenal area as the site of the new agency.

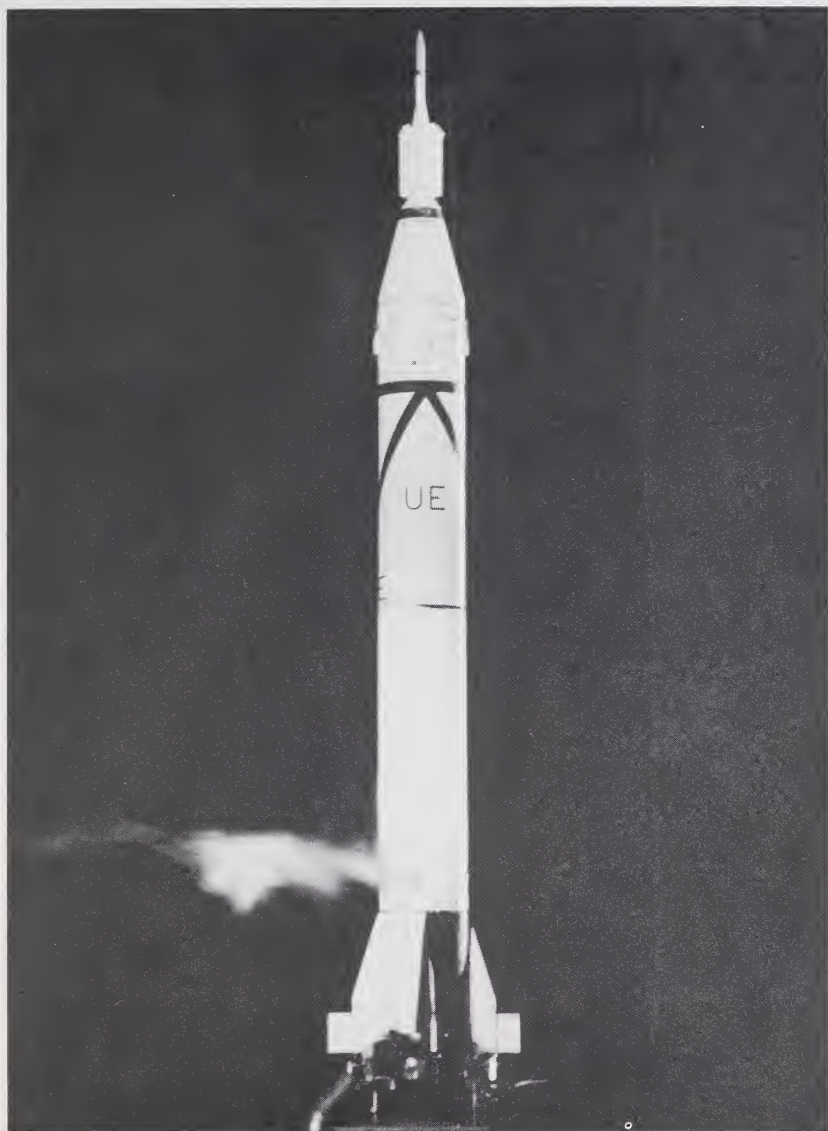


MG John B. Medaris arrived at Redstone Arsenal on 1 February 1956 to officially take over the Army Ballistic Missile Agency (ABMA). He was welcomed to the arsenal by BG Holger N. Toftoy (right), the Commanding General of Redstone Arsenal.

Under the jurisdiction of the Chief of Ordnance, ABMA was initially responsible for the REDSTONE missile program and the Intermediate Range Ballistic Missile program. In January 1958, the PERSHING missile program was added as a mission responsibility. The Army satellite program, for which ABMA is best known, was executed under special orders and was not actually assigned as a mission of this agency.



Top officials of ABMA's famous Development Operations Division appear for a group picture in June 1959. From left to right: Dr. Ernst Stuhlinger, Director - Research Projects Office; Dr. H. Hoelzer, Director - Computation Laboratory; K. L. Heimbarg, Director - Test Laboratory; Dr. E. D. Geissler, Director - Aeroballistics Laboratory; E. W. Neubert, Director - Systems Analysis & Reliability Laboratory; Dr. W. Haeussermann, Director - Guidance and Control Laboratory; Dr. Wernher von Braun, Director - Development Operations Division; W. A. Mrazek, Director - Structures and Mechanics Laboratory; Hans Hueter, Director - System Support Equipment Laboratory; Eberhard Rees, Deputy Director - Development Operations Division; Dr. Kurt Debus, Director - Missile Firing Laboratory; H. H. Maus, Director - Fabrication and Assembly Engineering Laboratory.



The Army Ballistic Missile Agency successfully launched the first U. S. satellite, EXPLORER I, from Cape Canaveral, Florida, at 2248 hours E.S.T. on 31 January 1958.

Because of the increasing importance of missilery and the pressing necessity for exploiting resources to their maximum capabilities, the Department of the Army created the Army Ordnance Missile Command (AOMC) on 31 March 1958. Headquartered on the Redstone Arsenal complex, the command was under the jurisdiction of the Chief of Ordnance. Its subordinate elements included ABMA; Redstone Arsenal; the Jet Propulsion Laboratory at the California Institute of Technology in Pasadena, California; and the White Sands Proving Ground in New Mexico. The latter was renamed the White Sands Missile Range effective 1 May 1958. The Army Rocket and Guided Missile Agency (ARGMA) was organized as another subordinate element of AOMC on 1 April 1958. Although not officially established as an activity under the jurisdiction of the Chief of Ordnance until 1 June 1958, ARGMA assumed the technical missions formerly assigned to Redstone Arsenal. The primary mission of Redstone Arsenal became that of providing support and housekeeping services for the entire arsenal complex.

In its eight years as the commodity arsenal for rockets and guided missiles, Redstone Arsenal had become the nerve center, not only for research and development, but also for the procurement, storage, maintenance, and repair of the entire family of Army Ordnance missile systems. Scientists, engineers, and technicians at Redstone Arsenal had transformed such weapon systems as the HONEST JOHN, LITTLE JOHN, REDSTONE, NIKE AJAX, NIKE HERCULES, HAWK, LACROSSE, CORPORAL, and SERGEANT from dreams and drawing board plans into realities.

Redstone Arsenal continued in its support role for AOMC until 1 June 1961 when it was replaced as a support element by the Army Ordnance Missile Support Agency (AOMSA). The name Redstone Arsenal thus became a geographical location only. Interestingly, AOMSA became a forerunner of today's Redstone Arsenal Support Activity which was created on 4 January 1971. This Army Missile Command (MICOM) activity provides base operations support services for the command and for all tenant organizations on Redstone Arsenal as well as other regional Federal activities. The number of personnel serviced by this organization, including retired military personnel and their dependents, totals over 50,000.

The AOMC continued in existence from March 1958 to 1 August 1962 when MICOM became operational at Redstone. During this time, AOMC experienced numerous changes among its subordinate elements. The change of Redstone Arsenal to AOMSA has already been discussed. In addition, the Jet Propulsion Laboratory was transferred to the National Aeronautics and Space Administration (NASA) on 3 December 1958. Effective 1 July 1960, AOMC/ABMA lost all of its space-related missions, along with some 4,000 civilian employees and \$100,000,000 worth of buildings and equipment at Redstone Arsenal and Cape Canaveral, Florida, to NASA's George C. Marshall Space Flight Center, which was officially opened that day at Redstone Arsenal.



The Commander of the Army Ordnance Missile Command (AOMC), MG August Schomburg, is shown speaking at ceremonies on 1 July 1960 transferring the Development Operations Division of the Army Ballistic Missile Agency (ABMA) to NASA. Left to right are: BG Richard M. Hurst, Commander of ABMA; Mr. Delmar M. Morris, Deputy Director for Administration, Marshall Space Flight Center; Dr. Wernher von Braun, Director, Marshall Space Flight Center; COL Harold N. Brownson, Deputy Commander of ARGMA; and General Schomburg. At far left is a model of the SATURN.

Then, on 11 December 1961, both ABMA and ARGMA were abolished and their functions and personnel were merged with AOMC headquarters. Shortly thereafter, effective 1 January 1962, the White Sands Missile Range was removed from the command jurisdiction of AOMC and placed directly under the Chief of Ordnance.



The Army's Family of Missiles in 1961. The larger missiles (L to R) are: NIKE HERCULES, SERGEANT, NIKE ZEUS, PERSHING, and NIKE AJAX. In the background is LACROSSE. In the foreground is HAWK. Soldiers in the foreground hold (L to R) the M-72 Rocket Grenade (LAW), the REDEYE, and the ENTAC.

Although it was not fully staffed and operational until 1 August 1962, MICOM was officially established on 23 May 1962. It operates under the jurisdiction of the U. S. Army Materiel Command (AMC) which assumed the missions and functions of the Office, Chief of Ordnance and certain other technical services which lost their statutory status as part of the sweeping reorganization of the Department of the Army in 1962.



The Army missile program at Redstone continued to be managed by a single command until 31 January 1977, when the missions and people of MICOM were split between the Army Missile Materiel Readiness Command (MIRCOM) and the Army Missile Research and Development Command (MIRADCOM). However, AMC, which was known as the Army Materiel Development and Readiness Command (DARCOM) at that time, soon found that the most logical and efficient way to meet the requirements of the Army missile program was under the single command concept. As a result, effective 1 July 1979, MIRCOM and MIRADCOM were disestablished and their organizational elements, missions, functions, manpower spaces, and people were combined in place under the reinstated Army Missile Command.

Today, Redstone Arsenal is the home of MICOM, the Marshall Space Flight Center, OMMCS, and numerous other tenant organizations. Morton Thiokol, Incorporated, also performs certain missile work for the Army in Government-owned facilities located on the arsenal. The total value of Army buildings, equipment, and utilities on Redstone is in excess of \$780 million. The total Government property investment at the arsenal, including the facilities at the Marshall Space Flight Center, is over \$1 billion.

BIBLIOGRAPHY

Annual Histories of the U. S. Army Missile Command and its predecessor organizations, 1941 to present.

Cagle, Mary T. "In 136 Years, Redstone's Sesquicentennial." *The Redstone Rocket*, 13 September 1955.

Cason, Cleo S., and Stroupe, Winona Y. "Historical Highlights of the Redstone Arsenal Complex." U. S. Army Missile Command, Historical Division Archives, Redstone Arsenal. Photocopy.

"Huntsville Gets Chemical War Plant; Cost Over \$40,000,000" *The Huntsville Times*, 3 July 1941.

Joiner, Helen Brents, *The Redstone Arsenal Complex in the Pre-Missile Era (A History of Huntsville Arsenal, Gulf Chemical Warfare Depot, and Redstone Arsenal, 1941-1949)*. Redstone Arsenal: Historical Division, U. S. Army Missile Command, 22 June 1966.

Joiner, Helen Brents, and Jolliff, Elizabeth C. *The Redstone Arsenal Complex in its Second Decade, 1950-1960*. Redstone Arsenal: Historical Division, U. S. Army Missile Command, 28 May 1969.

Jolliff, Elizabeth C. *History of the United States Army Missile Command, 1962-1977*. Redstone Arsenal: Historical Division, U. S. Army Missile Command, 20 July 1979.

"Location of Huntsville Arsenal Caused Rapid Change in City." *The Huntsville Times*, 11 September 1955.





3 1262 05151 1151



The REDSTONE Missile, "Old Reliable," serves as a reminder of the distinction with which the Redstone Arsenal Complex has served the Army and the nation since 1941.

FLARE



31262051511151

FLARE
